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PHOTOGRAPHIC INTELLIGENCE REPORT

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LIU-LI-HO RADIO STATION, CHINA

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LIU-LI-HO RADIO STATION, CHINA

The Liu-li-ho Radio Station* is located at 39-38-18N 116-05-20E, approximately 3.0 nautical miles (nm) north-northeast of Liu-li-ho, China (Figure 1). The station covers approximately 285 acres, and contains a fenced operations area and an adjacent fenced support area (Figure 2).

The operations area contains a domed multistory studio/control building, 120 by 120 feet (Item A, Figure 2); one multistory transmitter building, 120 by 50 feet (Item B, Figure 2); one multistory transmitter building, 100 by 55 feet with a 90- by 45-foot wing (Item C, Figure 2); four cooling ponds, each 50 feet in diameter; approximately 20 smaller buildings; and 24 self-supporting lattice towers, each bearing a crossarm on top.

The 24 lattice towers are capable of supporting up to 23 high-frequency curtain arrays. Lack of adequate photography precludes the identification of all the transmission lines and it cannot be determined if a curtain array is present between each set of towers. The crossarms on the towers indicate that each curtain array has a reflector screen and/or beam-switching capacity. Table 1 gives the azimuths and other mensural data for each curtain array, with nominal design frequency for both four bays and eight bays.

At the Hsien-yang Radio Communications Station, China, 1/ it was assumed, based on the number of feed points, that each curtain array probably contained four or eight bays (one bay equaling one-half wave length). At Liu-li-ho, feed points cannot be established, but the similarity between these two stations suggests that the higher curtain arrays at Liu-li-ho may each contain four bays, and those of lower height may each contain eight. Table 2 groups the antenna arrays by their orientation, and predicates the number of bays for each array on the basis of its height. Measurements in both Tables 1 and 2 are estimated to be accurate to within 10 to 15 percent.

The support area contains about 33 buildings, including 16 barracks, 3 administration buildings, and 14 storage and miscellaneous buildings.

*Tou-tien Radio Station, Bombing Encyclopedia,

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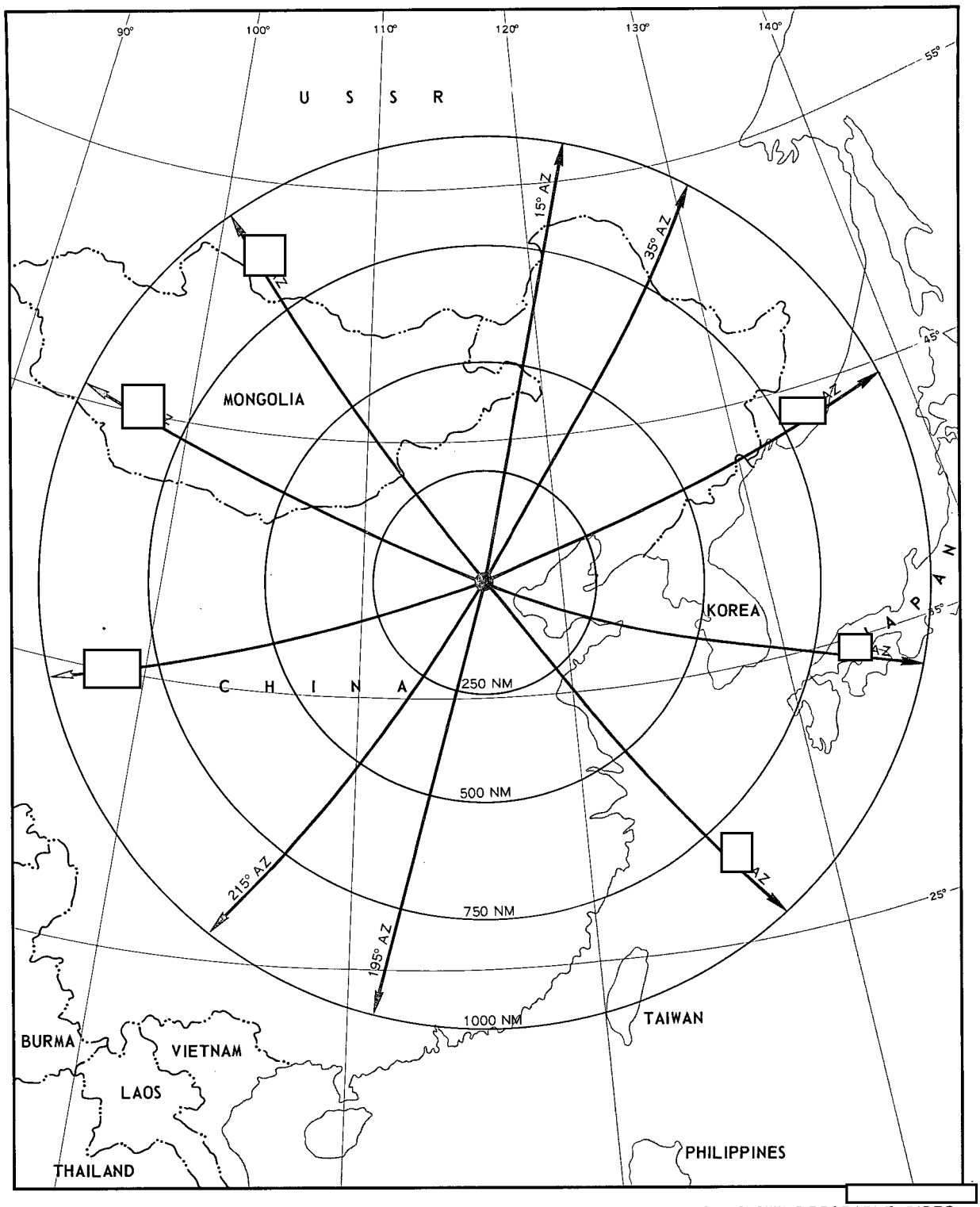

FIGURE 1. LOCATION OF LIU-LI-HO RADIO STATION, PLOTTED ON GNOMONIC PROJECTION, SHOWING PROBABLE DIRECTION OF TRANSMISSIONS.

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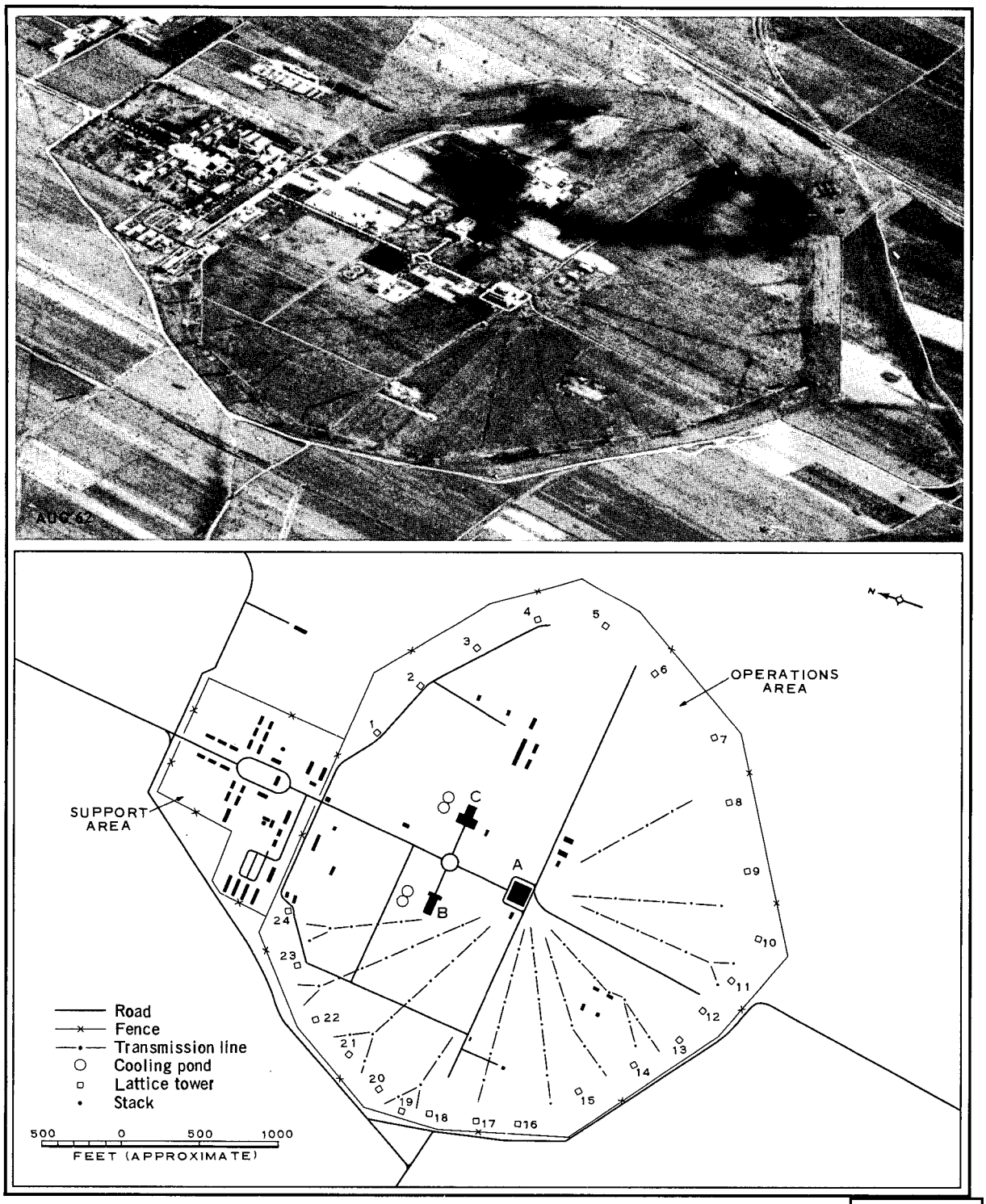

FIGURE 2. LAYOUT AND FACILITIES OF LIU-LI-HO RADIO STATION, CHINA.

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Table 1. Data on Curtain Antenna Arrays

Curtain Antenna Array*	Maximum Height of Curtain (ft)**	Distance Between Towers (ft)	Azimuth (degrees)***	Computed Nominal Design Frequency (mc)****	
				4 Bays	8 Bays
1-2	415	450		5-6	9-11
2-3	415	425		5-6	9-11
3-4	415	425		5-6	9-11
4-5	415	425		5-6	9-11
5-6	415	425		5-6	9-11
6-7	415	560		4-5	7-8
7-8	415	425		5-6	9-11
8-9	415	425		5-6	9-11
9-10	365	425		5-6	9-11
10-11	245	310		7-8	13-14
11-12	215	265		8-10	15-17
12-13	180	265		8-10	15-17
13-14	180	310		7-8	13-14
14-15	245	370		6-7	11-12
15-16	310	480		4-6	8-10
16-17	245	265		8-10	15-17
17-18	180	265		8-10	15-17
18-19	180	215		10-12	19-20
19-20	180	215		10-12	19-20
20-21	180	265		8-10	15-17
21-22	245	310		7-8	13-14
22-23	310	370		6-7	11-12
23-24	undetermined	370		6-7	11-12

*Curtain antenna array designators are based on the numbers on Figure 2 identifying the towers between which each array is suspended.

**Based on total height of shortest supporting tower. Allowance has not been made for curtain sag.

***See Figure 1.

****Based on one-half wave length per bay with one-quarter wave length allowed at each end of curtain for support wires.

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Table 2. Summary of Information on Curtain Antenna Arrays Grouped by Azimuth, and in order of Height and Frequency

Curtain Antenna Array	Maximum Height of Curtain (ft)*	Distance Between Towers (ft)	Azimuth (degrees)	Possible Number of Bays	Computed Nominal Design Frequency (mc)**
1-2	415	450	15/195	4	5-6
10-11	245	310	15/195	8	13-14
11-12	215	265	15/195	8	15-17
12-13	180	265	15/195	8	15-17
2-3	415	425	35/215	4	5-6
3-4	415	425	35/215	4	5-6
15-16	310	480	35/215	8	8-10
14-15	245	370	35/215	8	11-12
13-14	180	310	35/215	8	13-14
4-5	415	425		4	5-6
16-17	245	265		8	15-17
17-18	180	265		8	15-17
18-19	180	215		8	19-20
5-6	415	425		4	5-6
6-7	415	560		4	4-5
21-22	245	310		8	13-14
20-21	180	265		8	15-17
19-20	180	215		8	19-20
7-8	415	425		4	5-6
8-9	415	425		4	5-6
9-10	365	425		4	5-6
22-23	310	370		8	11-12
23-24	undetermined	370		8	11-12

*Does not allow for sag.

**Based on one-half wave length per bay with one-quarter wave length allowed at each end of curtain for support wires.

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MAPS OR CHARTS

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REQUIREMENT

NSA. NSA/PO43/R39-63

PROJECT

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